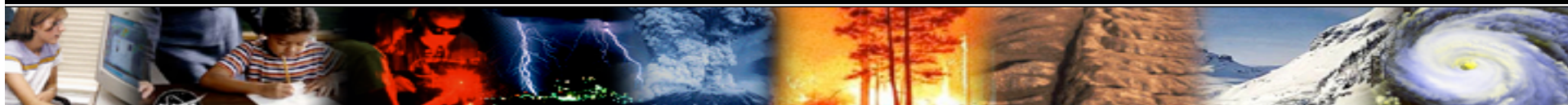
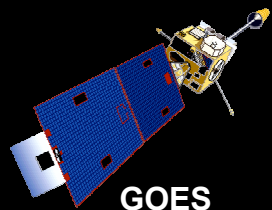


# Constellation: Global Measurements

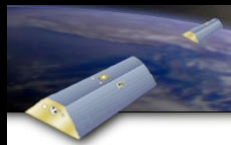




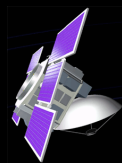
# Constellation: Global Measurements



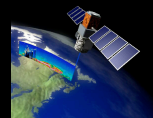
GOES



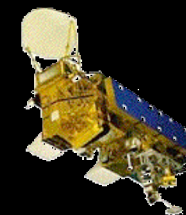
GRACE



Cloudsat



CALIPSO



Aqua



TRMM



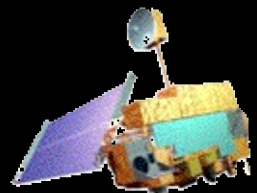
TOPEX



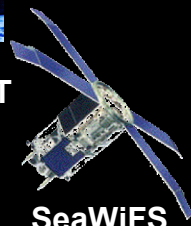
Meteor/  
SAGE



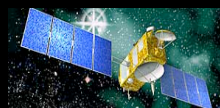
QuikSCAT



Terra



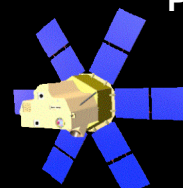
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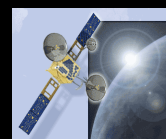
Jason



ICESat



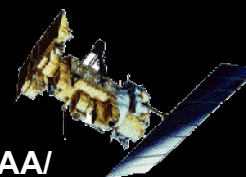
SORCE



GIFTS



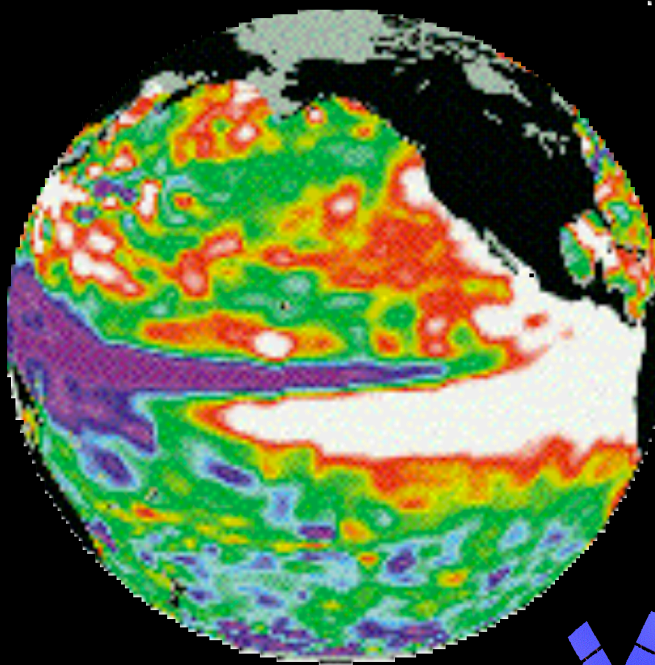
Landsat



NOAA/  
POES

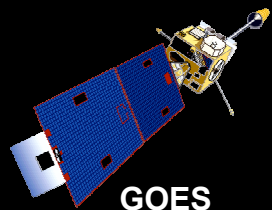


Aura

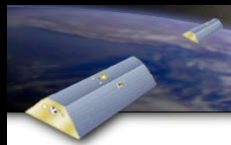




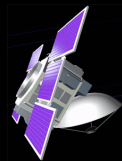
# Constellation: Global Measurements



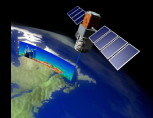
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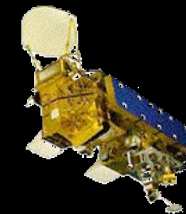
GRACE



Cloudsat



CALIPSO



Aqua



TRMM



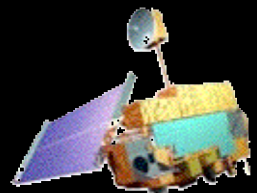
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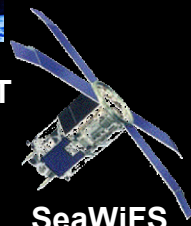
Meteor/  
SAGE



QuikSCAT



Terra



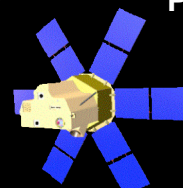
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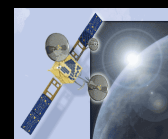
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ICESat



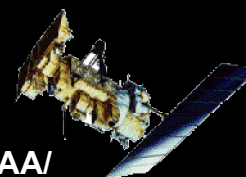
SORCE



GIFTS



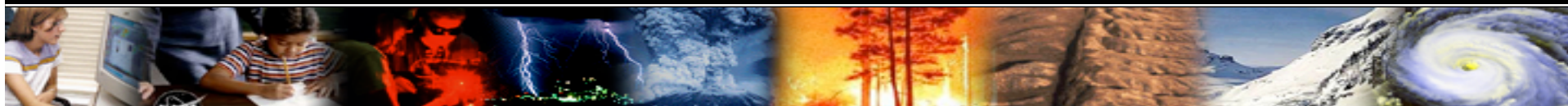
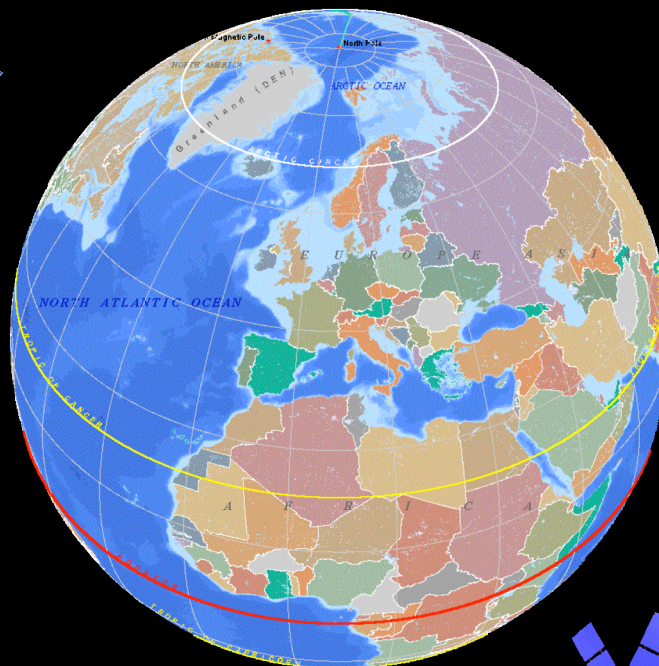
Landsat

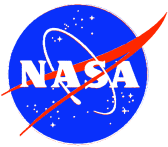


NOAA/  
POES



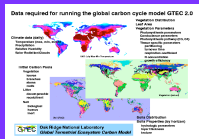
Aura





# Earth System Models:

## LAND



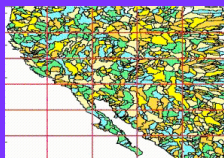
### GTEC

Terrestrial  
Ecosystem Carbon

**Mosaic** Energy, water fluxes  
**CENTURY** Land change/carbon  
**VolQuake** Seismicity  
**HSPF** Nutrient transport  
**ANIMO** Soil nitrogen cycle  
**PRMS** Precipitation run-off  
**MAESTRO** Canopy biomass

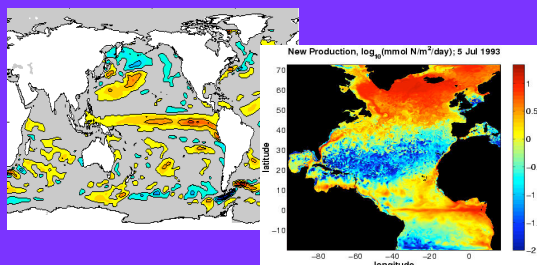
### Catchment LSM

Soil Moisture  
Transport



## OCEANS/ICE

**ROMS** Regional circulation  
**MOM3** Multi-scale ocean  
**CSIM4** Sea-ice  
**NWW3** Global/regional waves  
**BOM** Coastal & shelf seas  
**GOTM** Turbulence & mixing



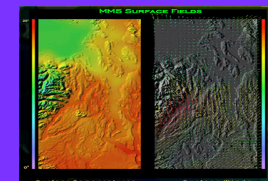
### Poseidon, HYCOM

Ocean GCM

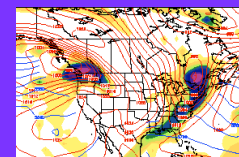
## ATMOSPHERE

### MM5

Mesoscale  
Meteorology



**CAM/CCM** Global climate  
**GISS GCM** Climate change  
**BEIS** Biogenic emissions  
**MSISE** Density, temperature  
**VAFTAD** Volcanic ash  
**PRECIS** Regional climate



### Aries/GEOS

Atmos. GCM

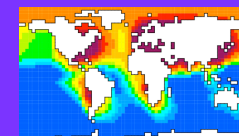
## COUPLED MODELS



### COUPMODEL

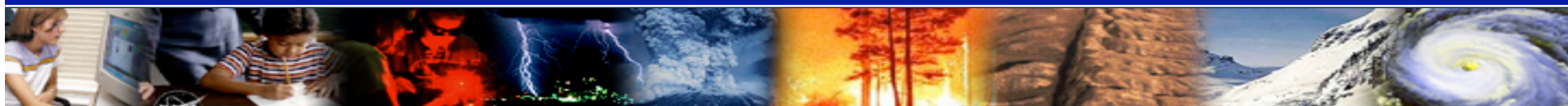
Soil-Plant-Atmosphere

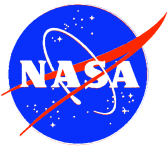
**LOIS** Land-Ocean  
**HadCM3** Ocean-Atmosphere  
**COLA** Atmosphere-Land/Biosphere  
**ZEUS, CCSM** Land-Ocean-Ice-Atmosphere



### AOM

Atmosphere-Ocean



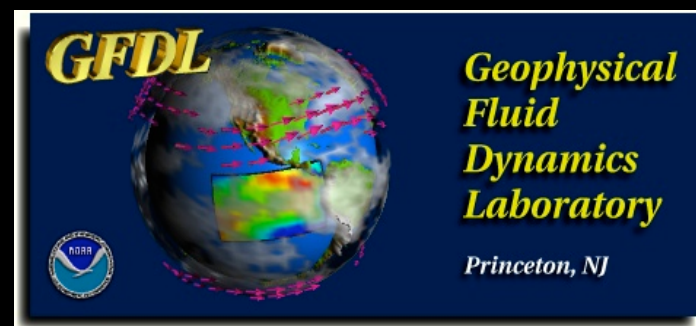
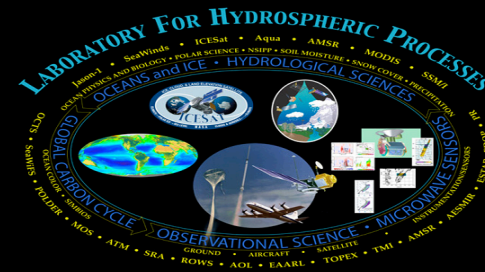


# Earth Science Laboratories



NASA Goddard Space Flight Center

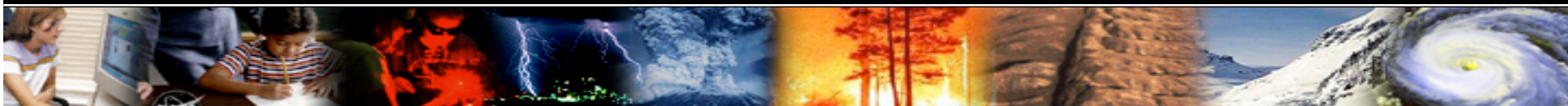
LABORATORY FOR ATMOSPHERES



National Centers  
for  
Environmental Prediction

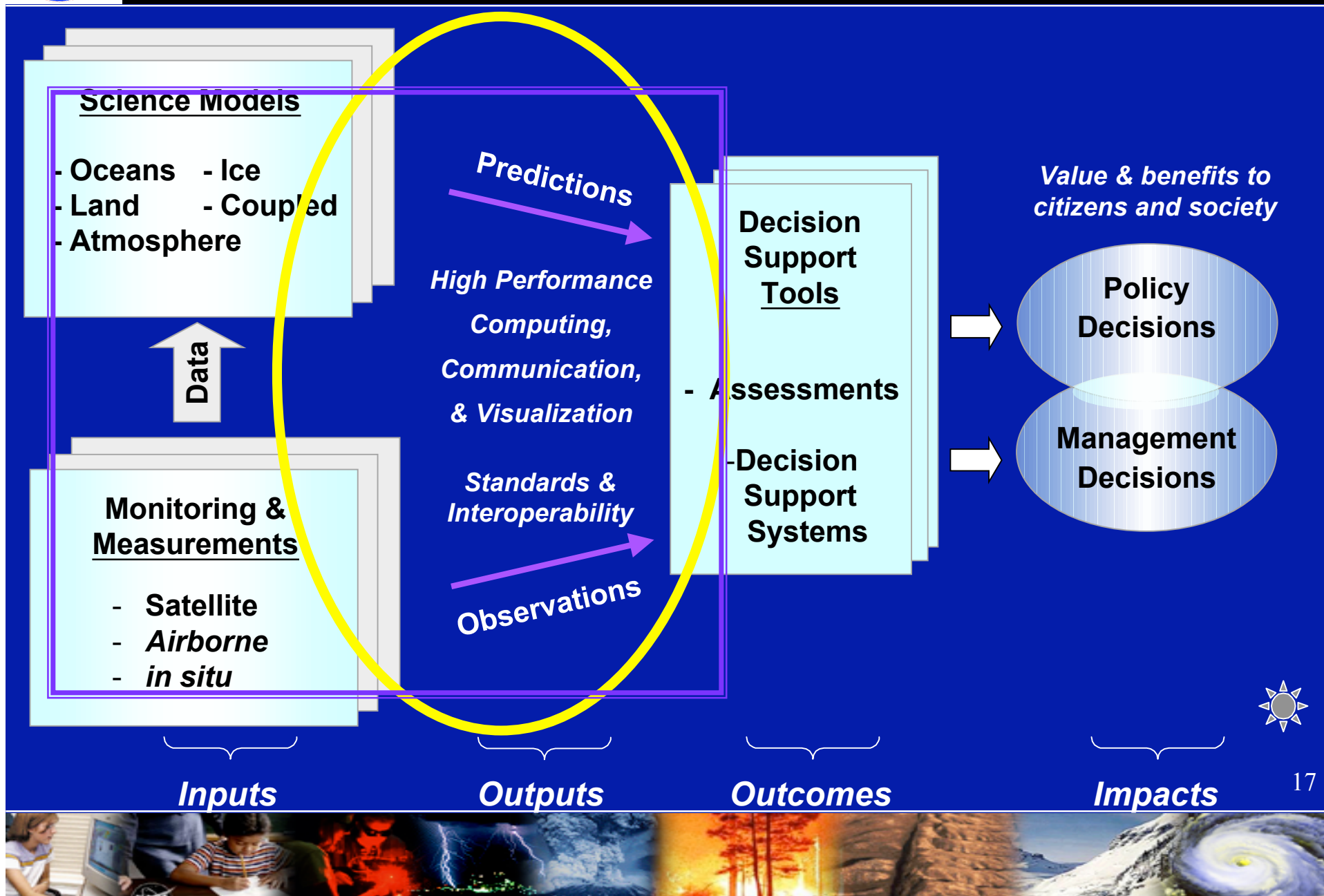


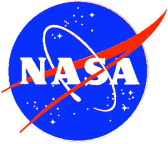
Office of Research  
and Applications





# Solutions: Science to Decision Support

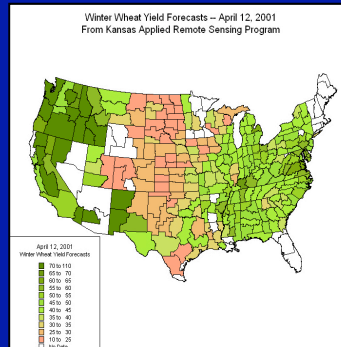




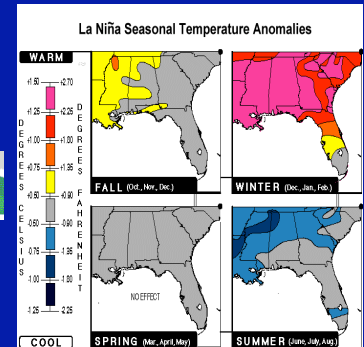
# Decision Support Systems



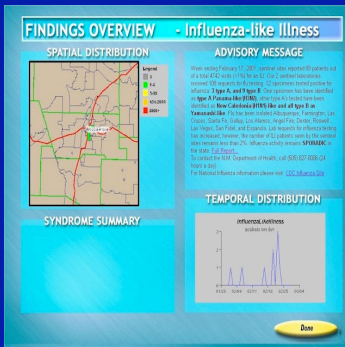
**Aviation Safety:  
National Airspace System**



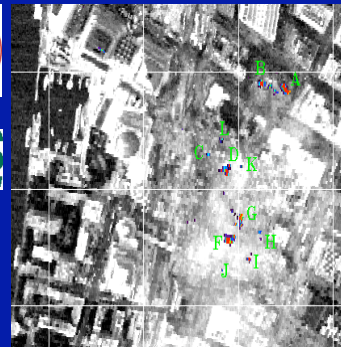
**CCRI:  
Carbon Management System**



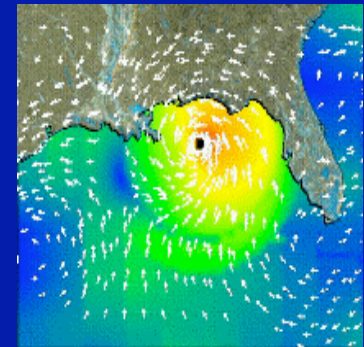
**Energy Forecasting:  
Renewable Energy System**



**Public Health:  
Risk Assessment System**

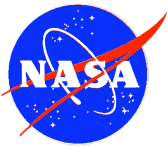


**Homeland Security:  
Situation Center**

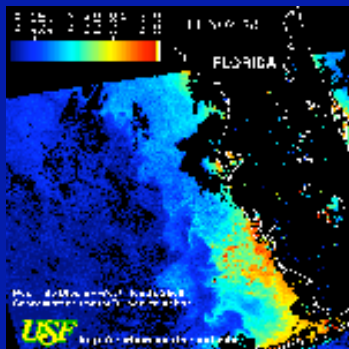


**Disaster Preparedness:  
HAZUS Risk Prediction**

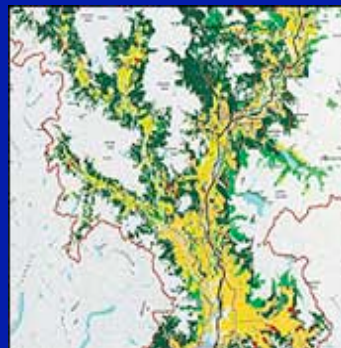




# Decision Support Systems



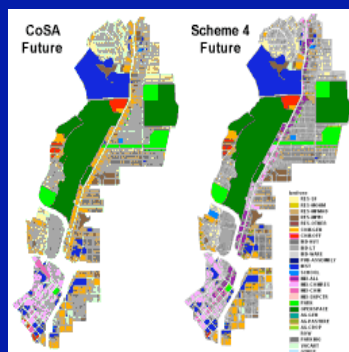
**Coastal Management:  
Harmful Algal Bloom Forecast**



**Water Management:  
AWARDS, RiverWare**



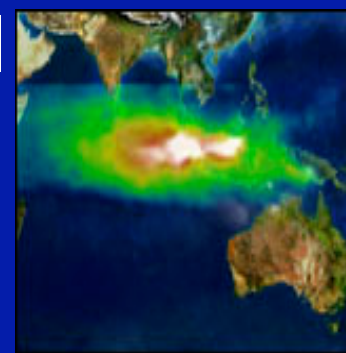
**Invasive Species:  
Prediction Center**



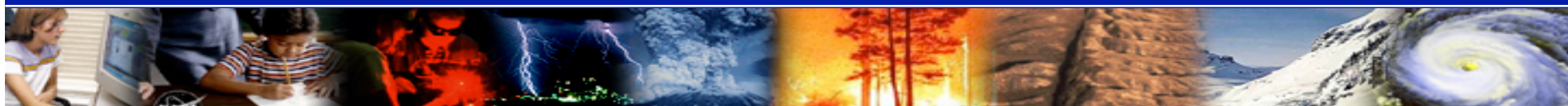
**Community Growth:  
Urban Dynamics System**



**Agricultural:  
Foreign Agriculture Forecast**

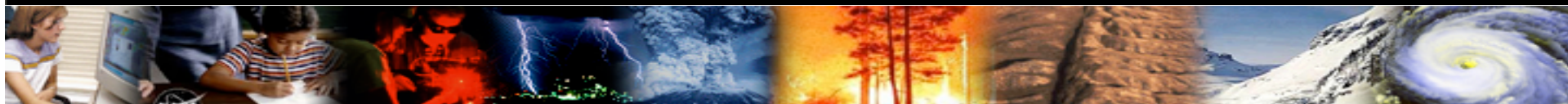


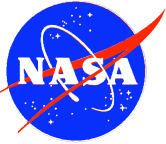
**Air Quality:  
Community Air Quality**



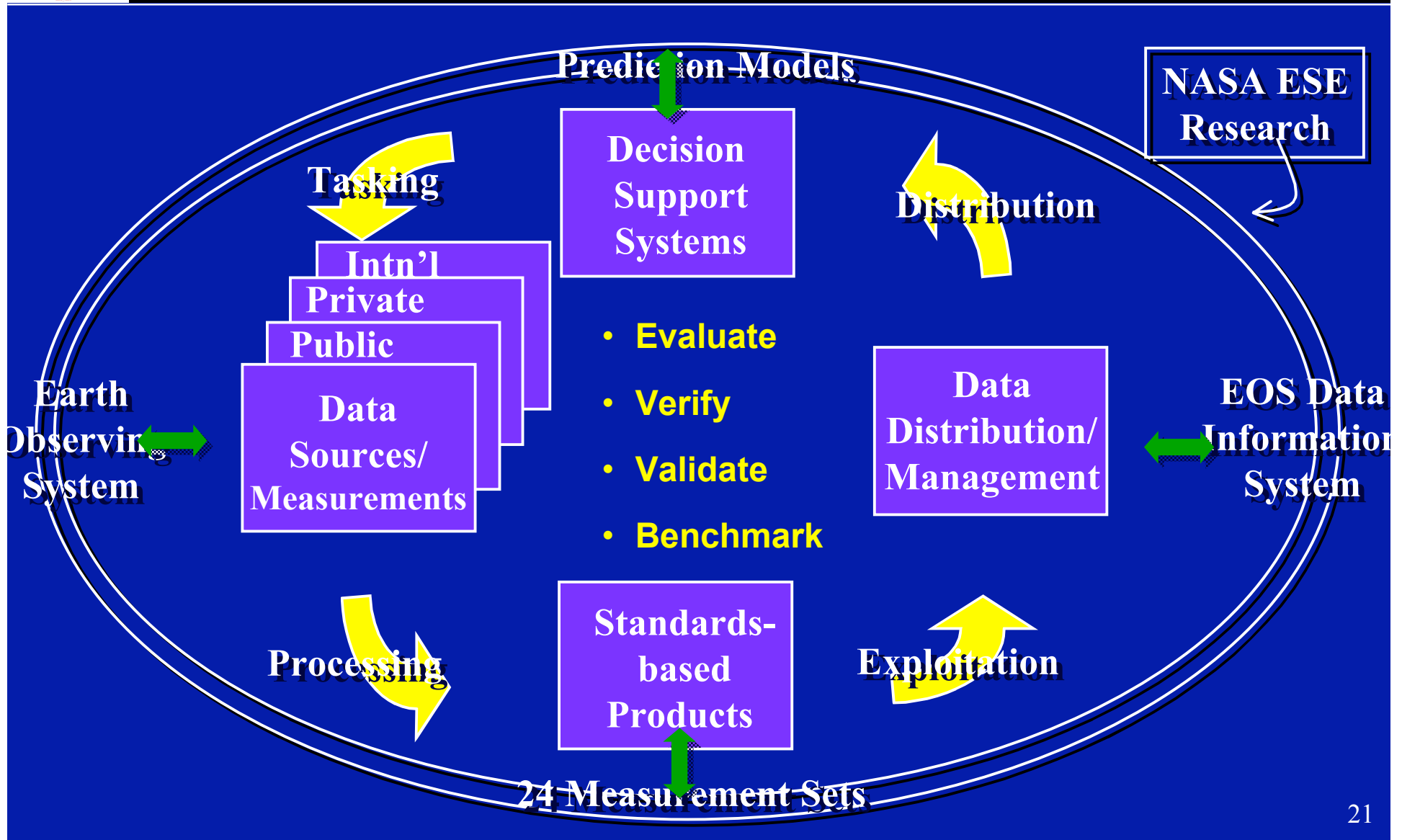


# “One NASA”





# Stennis Space Center – Systems Eng'g





# National Applications



**Carbon Management**



**Public Health**



**Energy Forecasting**



**Aviation Safety**



**Water Management**



**Homeland Security**



**Coastal Management**



**Disaster Preparedness**



**Agricultural Competitiveness**



**Invasive Species**



**Community Growth**



**Air Quality**

